TAXONOMY OF THE ORDER *BUNYAVIRALES*: UPDATE 2019

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orthobunyavirus; orthoferavirus; orthohantavirus; orthojonvirus; orthonairovirus; orthophasmavirus; orthotospovirus; peribunyavirid; *Peribunyaviridae*; peribunyavirus; phasmavirid; phasivirus; *Phasmaviridae*; phasmavirus; phenuivirid; *Phenuiviridae*; phenuivirus; phlebovirus; reptarenavirus; tenuivirus; tospovirid; *Tospoviridae*; tospovirus; virus classification; virus nomenclature; virus taxonomy

ABSTRACT

In February 2019, following the annual taxon ratification vote, the order *Bunyavirales* was amended by creation of two new families, four new subfamilies, 11 new genera and 77 new species, merging of two species, and deletion of one species. This article presents the updated taxonomy of the order *Bunyavirales* now accepted by the International Committee on Taxonomy of Viruses (ICTV).

INTRODUCTION

The virus order *Bunyavirales* was established in 2017 to accommodate related viruses with segmented, linear, single-stranded, negative-sense or ambisense RNA genomes classified into 9 families [19]. An amended/emended order description was published in early 2019 [20]. Here we present the changes that were proposed via official ICTV taxonomic proposals that were accepted by the ICTV Executive Committee (EC) in February 2019. Therefore, these changes are now part of the official ICTV taxonomy.

TAXONOMIC CHANGES AT THE ORDER RANK

The order was expanded by addition of two new families. Family *Leishbuviridae* was created to accommodate one new genus, *Shilevirus*, including one new species, *Leptomonas shilevirus*, for Leptomonas moramango leishbunyavirus (LEPMV) discovered in a trypanosomatid protist (*Leptomonas moramango*) [2]. Family *Tospoviridae* was recreated for the already established genus *Tospovirus* (now renamed *Orthotospovirus*; TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen) and expanded by seven new species (TaxoProp 2018.025P.A.v1.Orthotospovirus_7sp):

- *Bean necrotic mosaic orthotospovirus* for bean necrotic mosaic virus (BeNMV) discovered in common beans (*Phaseolus vulgaris*) [8];
- *Calla lily chlorotic spot orthotospovirus* for calla lily chlorotic spot virus (CCSV) found in calla lilies (*Zantedeschia* sp.) [5, 18];
- *Capsicum chlorosis orthotospovirus* for Capsicum chlorosis virus (CaCV) found in capsicums, chillies, and tomatoes [16, 23];
- *Chrysanthemum stem necrosis orthotospovirus* for Chrysanthemum stem necrosis virus (CSNV) infecting chrysanthemums [3, 10];
- *Melon severe mosaic orthotospovirus* for melon severe mosaic virus (MSMV) infecting cucurbit crops [6, 7];
- *Melon yellow spot orthotospovirus* for melon yellow spot virus (MYSV) found in netted melon (*Cucumis melo*) [15]; and
- *Soybean vein necrosis orthotospovirus* for soybean vein necrosis virus (SVNV) discovered in soybeans (*Glycine max*) [36].

A genus unassigned to any family, *Coguvirus*, was established to include species *Citrus coguvirus* for Citrus concave gum-associated virus (CCGaV) found in citrus trees [26] (TaxoProp 2018.020P.A.v1.Coguvirus).

TAXONOMIC CHANGES AT THE FAMILY RANK

Arenaviridae

The family *Arenaviridae* was expanded by one genus, *Antennavirus*, to include two new species, *Hairy antennavirus* and *Striated antennavirus*, for Wēnlǐngfrogfish arenavirus 2 (WlFV-2) and

Wēnlǐng frogfish arenavirus 1 (WlFV-1) both found in striated frogfish (*Antennarius striatus*) [33] (TaxoProp 2018.005M.A.v1.Antennavirus).

Cruliviridae

No changes were made at the family rank.

Fimoviridae

No changes were made at the family rank.

Hantaviridae

The family (TaxoProp 2018.010M.A.v2.Hantaviridae_4subfam) was reorganized into four subfamilies:

- subfamily *Actantavirinae* was created for new genus *Actinavirus* to accommodate 3 novel species: *Batfish actinovirus* for Wēnlǐng minipizza batfish virus (WEMV) discovered in minipizza batfish (*Halieutaea stellata*); *Goosefish actinovirus* for Wēnlǐng yellow goosefish virus (WEYGV) found in yellow goosefish (*Lophius litulon*); and *Spikefish actinovirus* for Wēnlǐng red spikefish virus (WERSV) of red spikefish (*Triacanthodes anomalus*) [33];
- subfamily *Agantavirinae* was created for new genus *Agnathovirus* to accommodate one new species, *Hagfish agnathovirus*, for Wēnlǐng hagfish virus (WEHV) of inshore hagfish (*Eptatretus burgeri*) [33];
- subfamily *Mammantavirinae* was created to accommodate the established genera *Loanvirus*, *Mobatvirus*, and *Orthohantavirus*. Two new orthohantavirus species, *Seewis orhtohantavirus* and *Tigray orthohantavirus*, were created for Seewis virus (SWSV) of Eurasian common

shrews (*Sorex araneus*) [34] and Tigray virus (TIGV) of Ethiopian white-footed mice (*Stenocephalemys albipes*) [12, 25], respectively; and

- subfamily *Repantavirinae* was created for new genus *Reptillovirus* to accommodate one new species, *Gecko reptillovirus*, for Hǎinán oriental lead-toed gecko virus (HOLGV) discovered in oriental leaf-toed geckos (*Hemidactylus bowringii*) [33].

Mypoviridae

No changes were made at the family rank.

Nairoviridae

The species *Estero Real orthonairovirus* was created for Estero Real virus (ERV) (moved from genus *Orthobunyavirus*, family *Peribunyaviridae*) [1] (TaxoProp 2018.012M.A.v1.Bunyavirales_spmov).

Peribunyaviridae

The family was expanded by one new genus, *Pacuvirus*, to accommodate three new species: *Pacui pacuvirus* for Pacui virus (PACV) discovered in a rice rat (*Oryzomys* sp.); *Rio Preto da Eva pacuvirus* for Rio Preto da Eva virus discovered in a sewer gnat (Psychodidae sp.); and *Tapirape pacuvirus* for Tapirapé virus found in a hocicudo (*Oxymycterus* sp.) [27] (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). Genus *Tospovirus* was removed from the family and placed into the new family *Tospoviridae* as genus *Orthotospovirus* (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). The genus *Orthobunyavirus* was reorganized by moving previously classified viruses into a total of 38 new species (one resulting from a merger of two previously established species) (TaxoProp 2018.008M.A.v1.Orthobunyavirus_38sp). Five

293 additional novel species were added: *Bellavista orthobunyavirus* for Bellavista virus isolated
294 from mosquitoes (*Culex portesi*) [14]; *Enseada orthobunyavirus* for Enseada virus isolated from
295 *Culex* mosquitoes [4, 9]; *Maguari orthobunyavirus* for Maguari virus (MAGV) isolated from
296 mosquitoes [13]; *Tataguine orthobunyavirus* for Tataguine virus (TATV) found in a human
297 sample, and *Witwatersrand orthobunyavirus* for Witwatersrand virus (WITV) from mosquitoes
298 [29] (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). Species *Estero Real orthobunyavirus*
299 was abolished, and its member, Estero Real virus (ERV), was moved into family *Nairoviridae*
300 [1] (TaxoProp 2018.012M.A.v1.Bunyavirales_spmov).

301 ***Phasmaviridae***

302 The family was expanded by addition of one new genus, *Sawastrivirus*, to include one new
303 species, *Sanxia sawastrivirus*, for Sānxiá water strider virus 2 (SxWSV-2) (TaxoProp
304 2018.017M.A.v1.Bunyavirales_2fam5gen) detected in gerrid water striders [31]. The genus
305 *Orthophasmavirus* was expanded by the addition of five new species: *Culex orthophasmavirus*
306 for Culex phasma-like virus (CPLV) detected in *Culex* mosquitoes [32]; *Ganda*
307 *orthophasmavirus* for Ganda bee virus (GBEEV) of European orchard bees (*Osmia cornuta*)
308 [28]; *Odonate orthophasmavirus* for Húběi odonate virus 8 (HbOV-8) [31]; *Qingling*
309 *orthophasmavirus* for Húběi odonate virus 9 (HbOV-9) of odonates [31]; and *Seattle*
310 *orthophasmavirus* for Seattle Prectang virus (SEPV) found in a moth (*Pasiphila rectangulata*)
311 [21] (TaxoProp 2018.009M.A.v1.Phasmavirus_5sp).

312 ***Phenuiviridae***

313 The family *Phenuiviridae* was expanded by addition of three new genera. Genus *Kabutovirus*

was created to include two new species, *Huangpi kabutovirus* and *Kabuto mountain kabutovirus*, for Huángpí tick virus 1 (HpTV-1) of ticks (*Haemaphysalis doenitzi*) [17] and Kabuto mountain virus (KAMV) of ticks (*Haemaphysalis flava*) [11], respectively. Genus *Laulavirus* was created to include one species, *Laurel Lake laulavirus*, for Laurel Lake virus (LLV) of ticks (*Ixodes scapularis*) [35]. Genus *Wenrivirus* was created to include one species, *Shrimp wenrivirus*, for Wēnzhōu shrimp virus 1 (WzSV-1) [17] found in giant tiger prawns (Penaeus monodon) [17] (TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). The established genus *Banyangvirus* was expanded by two species, *Guertu banyangvirus* and *Heartland banyangvirus*, for Guertu virus (GTV) found in *Dermacentor nuttalli* ticks [30] and Heartland virus (HRTV), a tick-borne virus originally discovered in human samples [24], respectively (TaxoProp 2018.013M.A.v1.Banyangvirus_sp; TaxoProp 2018.017M.A.v1.Bunyavirales_2fam5gen). Genus *Phlebovirus* was expanded by one species, *Mukawa phlebovirus*, for Mukawa virus (MKWV) of ticks (*Ixodes persulcatus*) [22] (TaxoProp 2018.014M.A.v1.Phlebovirus_sp). In genus *Phasivirus*, species *Wuhan fly phasivirus* was abolished (TaxoProp 2018.019M.A.v1.Phenuiviridae_Remsp).

Wupedeviridae

No changes were made at the family rank.

SUMMARY

A summary of the current, ICTV-accepted taxonomy of the order *Bunyavirales* is presented in Table 1.

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Table 1. ICTV-accepted taxonomy of the order *Bunyavirales* as of February 2019. Listed are all bunyaviruses that are classified into species.

Genus	**Species¶**	**Virus (Abbreviation)¶**
Family *Arenaviridae*		
Antennavirus	*Hairy antennavirus*	Wēnlǐng frogfish arenavirus 2 (WlFAV-2)
	*Striated antennavirus**	Wēnlǐng frogfish arenavirus 1 (WlFAV-1)
Hartmanivirus	*Haartman hartmanivirus**	Haartman Institute snake virus 1 (HISV-1)
Mammarenavirus	*Allpahuayo mammarenavirus*	Allpahuayo virus (ALLV)
	Argentinian mammarenavirus	Junín virus (JUNV)
	Bear Canyon mammarenavirus	Bear Canyon virus (BCNV)
	Brazilian mammarenavirus	Sabiá virus (SBAV)
	Cali mammarenavirus	Pichindé virus (PICHV)
	Chapare mammarenavirus	Chapare virus (CHAPV)
	Cupixi mammarenavirus	Cupixi virus (CUPXV)
	Flexal mammarenavirus	Flexal virus (FLEV)
	Gairo mammarenavirus	Gairo virus (GAIV)

	Guanarito mammarenavirus	Guanarito virus (GTOV)
	Ippy mammarenavirus	Ippy virus (IPPYV)
	Lassa mammarenavirus	Lassa virus (LASV)
	Latino mammarenavirus	Latino virus (LATV)
	Loei River mammarenavirus	Loei River virus (LORV)
	Lujo mammarenavirus	Lujo virus (LUJV)
	Luna mammarenavirus	Luli virus (LULV)
		Luna virus (LUAV)
	Lunk mammarenavirus	Lunk virus (LNKV)
	*Lymphocytic choriomeningitis mammarenavirus**	Dandenong virus (DANV)
		lymphocytic choriomeningitis virus (LCMV)
	Machupo mammarenavirus	Machupo virus (MACV)
	Mariental mammarenavirus	Mariental virus (MRLV)

	Merino Walk mammarenavirus	Merino Walk virus (MRWV)
	Mobala mammarenavirus	mobala virus (MOBV)
	Mopeia mammarenavirus	Mopeia virus (MPOV)
		Morogoro virus (MORV)
	Okahandja mammarenavirus	Okahandja virus (OKAV)
	Oliveros mammarenavirus	Oliveros virus (OLVV)
	Paraguayan mammarenavirus	Paraná virus (PRAV)
	Pirital mammarenavirus	Pirital virus (PIRV)
	Ryukyu mammarenavirus	Ryukyu virus (RYKV)
	Serra do Navio mammarenavirus	Amaparí virus (AMAV)
	Solwezi mammarenavirus	Solwezi virus (SOLV)
	Souris mammarenavirus	souris virus (SOUV)
	Tacaribe mammarenavirus	Tacaribe virus (TCRV)
	Tamiami mammarenavirus	Tamiami virus (TMMV)
	Wenzhou mammarenavirus	Wēnzhōu virus (WENV)

	Whitewater Arroyo mammarenavirus	Big Brushy Tank virus (BBRTV)
		Catarina virus (CTNV)
		Skinner Tank virus (SKTV)
		Tonto Creek virus (TTCV)
		Whitewater Arroyo virus (WWAV)
Reptarenavirus	*California reptarenavirus*	CAS virus (CASV)
	Giessen reptarenavirus	University of Giessen virus 1 (UGV-1)
		University of Giessen virus 2 (UGV-2)
		University of Giessen virus 3 (UGV-3)
	*Golden reptarenavirus**	Golden Gate virus (GOGV)
	Ordinary reptarenavirus	tavallinen suomalainen mies virus 2 (TSMV-2)
	Rotterdam reptarenavirus	ROUT virus (ROUTV)
		University of Helsinki virus 1 (UHV-1)
Family *Cruliviridae*		

Lincruvirus	*Crustacean lincruvirus**	Wēnlǐng crustacean virus 9 (WlCV-9)
Family *Fimoviridae*		
Emaravirus	*Actinidia chlorotic ringspot-associated emaravirus*	Actinidia chlorotic ringspot-associated virus (AcCRaV)
	*European mountain ash ringspot-associated emaravirus**	European mountain ash ringspot-associated virus (EMARaV)
	Fig mosaic emaravirus	fig mosaic virus (FMV)
	High Plains wheat mosaic emaravirus	High Plains wheat mosaic virus (HPWMoV)
	Pigeonpea sterility mosaic emaravirus 1	pigeonpea sterility mosaic virus (PPSMV)
	Pigeonpea sterility mosaic emaravirus 2	pigeonpea sterility mosaic virus 2 (PPSMV-2)
	Raspberry leaf blotch emaravirus	raspberry leaf blotch virus (RLBV)
	Redbud yellow ringspot-associated emaravirus	redbud yellow ringspot-associated virus (RYRaV)
	Rose rosette emaravirus	rose rosette virus (RRV)

Family *Hantaviridae*		
Subfamily *Actantavirinae*		
Actinovirus	*Batfish actinovirus**	Wēnlǐng minipizza batfish virus (WEMBV)
	Goosefish actinovirus	Wēnlǐng yellow goosefish virus (WEYGV)
	Spikefish actinovirus	Wēnlǐng red spikefish virus (WERSV)
Subfamily *Agantavirinae*		
Agnathovirus	*Hagfish agnathovirus**	Wēnlǐng hagfish virus (WEHV)
Subfamily *Mammantavirinae*		
Loanvirus	*Longquan loanvirus**	Lóngquán virus (LQUV)
Mobatvirus	*Laibin mobatvirus*	Láibīn virus (LAIV)
	*Nova mobatvirus**	Nova virus (NVAV)
	Quezon mobatvirus	Quezon virus (QZNV)
Orthohantavirus	*Andes orthohantavirus*	Andes virus (ANDV)
		Castelo dos Sonhos virus (CASV)

		Lechiguanas virus (LECV = LECHV)
		Orán virus (ORNV)
	Asama orthohantavirus	Asama virus (ASAV)
	Asikkala orthohantavirus	Asikkala virus (ASIV)
	Bayou orthohantavirus	bayou virus (BAYV)
		Catacamas virus (CATV)
	Black Creek Canal orthohantavirus	Black Creek Canal virus (BCCV)
	Bowe orthohantavirus	Bowé virus (BOWV)
	Bruges orthohantavirus	Bruges virus (BRGV)
	Cano Delgadito orthohantavirus	Caño Delgadito virus (CADV)
	Cao Bang orthohantavirus	Cao Bằng virus (CBNV)
		Liánghé virus (LHEV)
	Choclo orthohantavirus	Choclo virus (CHOV)
	Dabieshan orthohantavirus	Dàbiéshān virus (DBSV)
	Dobrava-Belgrade orthohantavirus	Dobrava virus (DOBV)

		Kurkino virus (KURV)
		Saaremaa virus (SAAV)
		Sochi virus (SOCV)
	El Moro Canyon orthohantavirus	Carrizal virus (CARV)
		El Moro Canyon virus (ELMCV)
		Huitzilac virus (HUIV)
	Fugong orthohantavirus	Fúgòng virus (FUGV)
	Fusong orthohantavirus	Fŭsōng virus (FUSV)
	*Hantaan orthohantavirus**	Amur virus (AMRV)
		Hantaan virus (HTNV)
		Soochong virus (SOOV)
	Jeju orthohantavirus	Jeju virus (JJUV)
	Kenkeme orthohantavirus	Kenkeme virus (KKMV)
	Khabarovsk orthohantavirus	Khabarovsk virus (KHAV)
		Topografov virus (TOPV)

	Laguna Negra orthohantavirus	Laguna Negra virus (LANV)
		Maripa virus (MARV)
		Río Mamoré virus (RIOMV)
	Luxi orthohantavirus	Lúxī virus (LUXV)
	Maporal orthohantavirus	Maporal virus (MAPV)
	Montano orthohantavirus	Montaño virus (MTNV)
	Necocli orthohantavirus	Necoclí virus (NECV)
	Oxbow orthohantavirus	Oxbow virus (OXBV)
	Prospect Hill orthohantavirus	Prospect Hill virus (PHV)
	Puumala orthohantavirus	Hokkaido virus (HOKV)
		Muju virus (MUJV)
		Puumala virus (PUUV)
	Rockport orthohantavirus	Rockport virus (RKPV)
	Sangassou orthohantavirus	Sangassou virus (SANGV)
	Seewis orthohantavirus	Seewis virus (SWSV)

	Seoul orthohantavirus	gōu virus (GOUV)
		Seoul virus (SEOV)
	Sin Nombre orthohantavirus	New York virus (NYV)
		Sin Nombre virus (SNV)
	Thailand orthohantavirus	Anjozorobe virus (ANJZV)
		Serang virus (SERV)
		Thailand virus (THAIV)
	Tigray orthohantavirus	Tigray virus (TIGV)
	Tula orthohantavirus	Adler virus (ADLV)
		Tula virus (TULV)
	Yakeshi orthohantavirus	Yákèshí virus (YKSV)
Thottimvirus	*Imjin thottimvirus*	Imjin virus (MJNV)
	*Thottapalayam thottimvirus**	Thottapalayam virus (TPMV)
Subfamily *Repantavirinae*		
Reptillovirus	*Gecko reptillovirus**	Hǎinán oriental leaf-toed gecko virus

		(HOLGV)
Family *Leishbuviridae*		
Shilevirus	*Leptomonas shilevirus**	Leptomonas moramango virus (LEPMV)
Family *Mypoviridae*		
Hubavirus	*Myriapod hubavirus**	Húběi myriapoda virus 5 (HbMV-5)
Family *Nairoviridae*		
Orthonairovirus	*Artashat orthonairovirus*	Artashat virus (ARTSV)
	Chim orthonairovirus	Chim virus (CHIMV)
	Crimean-Congo hemorrhagic fever orthonairovirus	Crimean-Congo hemorrhagic fever virus (CCHFV)
	Dera Ghazi Khan orthonairovirus	Abu Hammad virus (AHV)
		Abu Mina virus (AMV)
		Dera Ghazi Khan virus (DGKV)
		Sapphire II virus (SAPV)

	*Dugbe orthonairovirus**	Dugbe virus (DUGV)
		kupe virus (KUPEV)
	Estero Real orthonairovirus	Estero Real virus (ERV)
	Hazara orthonairovirus	Hazara virus (HAZV)
		Tofla virus (TFLV)
	Hughes orthonairovirus	Caspiy virus (CASV)
		Farallon virus (FARV)
		Great Saltee virus (GRSV)
		Hughes virus (HUGV)
		Punta Salinas virus (PSV)
		Raza virus (RAZAV)
		Soldado virus (SOLV)
		Zirqa virus (ZIRV)
	Kasokero orthonairovirus	Kasokero virus (KASV = KASOV)
		Leopards Hill virus (LPHV)

		Yogue virus (YOGV)
	Keterah orthonairovirus	Gossas virus (GOSV)
		Issyk-kul virus (ISKV)
		Keterah virus (KTRV)
		Uzun-Agach virus (UZAV)
	Nairobi sheep disease orthonairovirus	Nairobi sheep disease virus (NSDV)
	Qalyub orthonairovirus	Bandia virus (BDAV)
		Geran virus (GERV)
		Qalyub virus (QYBV)
	Sakhalin orthonairovirus	Avalon virus (AVAV)
		Clo Mor virus (CMV = CLMV)
		Sakhalin virus (SAKV)
		Taggert virus (TAGV)
		Tillamook virus (TILLV)
	Tamdy orthonairovirus	Burana virus (BURV)

		Huángpí tick virus 1 (HpTV-1)
		Tăchéng tick virus 1 (TcTV-1)
		Tamdy virus (TAMV)
		Wēnzhōu tick virus (WzTV)
	Thiafora orthonairovirus	Erve virus (ERVEV)
		Thiafora virus (TFAV)
Shaspivirus	*Spider shaspivirus**	Shāyáng spider virus 1 (SySV-1)
Striwavirus	*Strider striwavirus**	Sānxiá water strider virus 1 (SxWSV-1)
Family *Peribunyaviridae*		
Herbevirus	*Herbert herbevirus**	Herbert virus (HEBV)
	Kibale herbevirus	Kibale virus (KIBV)
	Tai herbevirus	Taï virus (TAIV)
Orthobunyavirus	*Acara orthobunyavirus*	Acará virus (ACAV)
		Moriche virus (MORV)
	Aino orthobunyavirus	Aino virus (AINOV)

	Akabane orthobunyavirus	Akabane virus (AKAV)
		Tinaroo virus (TINV)
		Yaba-7 virus (Y7V)
	Alajuela orthobunyavirus	Alajuela virus (ALJV)
		San Juan virus (SJV)
	Anadyr orthobunyavirus	Anadyr virus (ANADV)
	Anhembi orthobunyavirus	Anhembi virus (AMBV)
	Anopheles A orthobunyavirus	Anopheles A virus (ANAV)
		Arumateua virus (ARTV = ARMTV)
		Caraipé virus (CPEV = CRPV)
		Las Maloyas virus (LMV)
		Lukuni virus (LUKV)
		Trombetas virus (TRMV)
		Tucuruí virus (TUCV = TUCRV)
	Anopheles B orthobunyavirus	Anopheles B virus (ANBV)

		Boracéia virus (BORV)
	Bakau orthobunyavirus	Bakau virus (BAKV)
		Ketapang virus (KETV)
		Nola virus (NOLAV)
		Tanjong Rabok virus (TRV)
		Telok Forest virus (TFV)
	Batai orthobunyavirus	Batai virus (BATV)
	Batama orthobunyavirus	Batama virus (BMAV)
	Bellavista orthobunyavirus	Bellavista virus (BELLV)
	Benevides orthobunyavirus	Benevides virus (BVSV = BENV)
	Bertioga orthobunyavirus	Bertioga virus (BERV)
		Cananéia virus (CNAV)
		Guaratuba virus (GTBV)
		Itimirim virus (ITIV)
		Mirim virus (MIRV)

	Bimiti orthobunyavirus	bimiti virus (BIMV)
	Birao orthobunyavirus	Birao virus (BIRV)
	Botambi orthobunyavirus	Botambi virus (BOTV)
	Bozo orthobunyavirus	Bozo virus (BOZOV)
	*Bunyamwera orthobunyavirus**	Bunyamwera virus (BUNV)
		Germiston virus (GERV)
		Lokern virus (LOKV)
		Mboké virus (MBOV)
		Ngari virus (NRIV)
		Northway virus (NORV)
		Santa Rosa virus (SARV)
		Shokwe virus (SHOV)
		Stanfield virus (STAV)
		Xingu virus (XINV)
	Bushbush orthobunyavirus	Benfica virus (BENV = BNFV)

		Bushbush virus (BSBV)
		Juan Díaz virus (JDV)
	Buttonwillow orthobunyavirus	Buttonwillow virus (BUTV)
	Bwamba orthobunyavirus	Bwamba virus (BWAV)
		Pongola virus (PGAV)
	Cache Valley orthobunyavirus	Cache Valley virus (CVV)
		Cholul virus (CHLV)
		Tlacotalpan virus (TLAV)
	Cachoeira Porteira orthobunyavirus	Cachoeira Porteira virus (CPOV)
	California encephalitis orthobunyavirus	California encephalitis virus (CEV)
		Morro Bay virus (MBV)
	Capim orthobunyavirus	Capim virus (CAPV)
	Caraparu orthobunyavirus	Apeú virus (APEUV)
		Bruconha virus (BRUV)
		Caraparú virus (CARV)

		El Huayo virus (EHUV)
		Itaya virus (ITYV)
		Ossa virus (OSSAV)
		Vinces virus (VINV)
	Cat Que orthobunyavirus	Cát Quế virus (CQV)
		Oya virus (OYAV)
	Catu orthobunyavirus	Catú virus (CATUV)
	Enseada orthobunyavirus	Enseada virus (ENSV)
	Faceys paddock orthobunyavirus	Facey's paddock virus (FPV)
	Fort Sherman orthobunyavirus	Fort Sherman virus (FSV)
	Gamboa orthobunyavirus	Brus Laguna virus (BLAV)
		Calchaquí virus (CQIV)
		Gamboa virus (GAMV)
		Pueblo Viejo virus (PVV)
		Soberanía virus (SOBV)

	Guajara orthobunyavirus	Guajará virus (GJAV)
	Guama orthobunyavirus	Ananindeua virus (ANUV)
		Guamá virus (GMAV)
		Mahogany Hammock virus (MHV)
		Moju virus (MOJUV)
	Guaroa orthobunyavirus	Guaroa virus (GROV)
	Iaco orthobunyavirus	Iaco virus (IACOV)
	Ilesha orthobunyavirus	Ilesha virus (ILEV)
	Ingwavuma orthobunyavirus	Ingwavuma virus (INGV)
	Jamestown Canyon orthobunyavirus	Inkoo virus (INKV)
		Jamestown Canyon virus (JCV)
		Jerry Slough virus (JSV)
		South River virus (SORV)
	Jatobal orthobunyavirus	Jatobal virus (JATV)
	Kaeng Khoi orthobunyavirus	Kaeng Khoi virus (KKV)

	Kairi orthobunyavirus	Kairi virus (KRIV)
	Keystone orthobunyavirus	Keystone virus (KEYV)
	Koongol orthobunyavirus	koongol virus (KOOV)
		wongal virus (WONV)
	La Crosse orthobunyavirus	La Crosse virus (LACV)
	Leanyer orthobunyavirus	Leanyer virus (LEAV)
	Lumbo orthbunyavirus	Lumbo virus (LUMV)
	Macaua orthobunyavirus	Macauã virus (MCAV)
	Madrid orthobunyavirus	Madrid virus (MADV)
	Maguari orthobunyavirus	Maguari virus (MAGV)
		Playas virus (PLAV)
	Main Drain orthobunyavirus	Main Drain virus (MDV)
	Manzanilla orthobunyavirus	Manzanilla virus (MANV)
		Inini virus (ININV)
	Marituba orthobunyavirus	Gumbo Limbo virus (GLV)

		Marituba virus (MTBV)
		Murutucú virus (MURV)
		Nepuyo virus (NEPV)
		Restan virus (RESV)
		Zungarococha virus (ZUNV)
	Melao orthobunyavirus	Melao virus (MELV)
	Mermet orthobunyavirus	Mermet virus (MERV)
	Minatitlan orthobunyavirus	Minatitlán virus (MNTV)
		Palestina virus (PLSV)
	MPoko orthobunyavirus	M'Poko virus (MPOV)
		Yaba-1 virus (Y1V)
	Nyando orthobunyavirus	Eretmapodites virus (ERETV)
		Mojuí dos Campos virus (MDCV)
		Nyando virus (NDV)
	Olifantsvlei orthobunyavirus	Bobia virus (BIAV)

		Dabakala virus (DABV)
		Olifantsvlei virus (OLIV)
		Oubi virus (OUBIV)
	Oriboca orthobunyavirus	Itaquí virus (ITQV)
		Oriboca virus (ORIV)
	Oropouche orthobunyavirus	Iquitos virus (IQTV)[d]
		Madre de Dios virus (MDDV)
		Oropouche virus (OROV)
		Perdões virus (PDEV)
		Pintupo virus (PINTV)
	Patois orthobunyavirus	Abras virus (ABRV)
		Babahoya virus (BABV)
		Pahayokee virus (PAHV)
		Patois virus (PATV)
		Shark River virus (SRV)

	Peaton orthobunyavirus	Peaton virus (PEAV)
	Potosi orthobunyavirus	Potosi virus (POTV)
	Sabo orthobunyavirus	Sabo virus (SABOV)
	San Angelo orthobunyavirus	San Angelo virus (SAV)
	Sango orthobunyavirus	Sango virus (SANV)
	Schmallenberg orthobunyavirus	Douglas virus (DOUV)
		Sathuperi virus (SATV)
		Schmallenberg virus (SBV)
		Shamonda virus (SHAV)
	Serra do Navio orthobunyavirus	Serra do Navio virus (SDNV)
	Shuni orthobunyavirus	Kaikalur virus (KAIV)
		Shuni virus (SHUV)
	Simbu orthobunyavirus	Para virus (PARAV)
		Simbu virus (SIMV)
	Snowshoe hare orthobunyavirus	Khatanga virus (KHATV)[9]

		snowshoe hare virus (SSHV)
	Sororoca orthobunyavirus	Sororoca virus (SORV)
	Tacaiuma orthobunyavirus	CoAr 1071 virus (CA1071V)
		CoAr 3627 virus (CA3626V)
		Tacaiuma virus (TCMV)
		Virgin River virus (VRV)
	Tahyna orthobunyavirus	Ťahyňa virus (TAHV)
	Tataguine orthobunyavirus	Tataguine virus (TATV)
	Tensaw orthobunyavirus	Tensaw virus (TENV)
	Tete orthobunyavirus	Bahig virus (BAHV)
		Matruh virus (MTRV)
		Tete virus (TETEV)
		Tsuruse virus (TSUV)
		Weldona virus (WELV)
	Thimiri orthobunyavirus	Thimiri virus (THIV)

	Timboteua orthobunyavirus	Timboteua virus (TBTV)
	Trivittatus orthobunyavirus	Achiote virus (ACHOV)
		Trivittatus virus (TVTV)
	Turlock orthobunyavirus	Lednice virus (LEDV)
		Turlock virus (TURV)
		Umbre virus (UMBV)
	Utinga orthobunyavirus	Utinga virus (UTIV)
	Witwatersrand orthobunyavirus	Witwatersrand virus (WITV)
	Wolkberg orthobunyavirus	Wolkberg virus (WBV)
	Wyeomyia orthobunyavirus	Rio Pracupi virus
		Taiassui virus (TAIAV)
		Tucunduba virus (TUCV)
		Wyeomyia virus (WYOV)
	Zegla orthobunyavirus	Zegla virus (ZEGV)
Pacuvirus	*Pacui pacuvirus**	Pacui virus (PACV)

	Rio Preto da Eva pacuvirus	Rio Preto da Eva virus (RPEV)
	Tapirape pacuvirus	Tapirapé virus (TAPV)
Shangavirus	*Insect shangavirus**	Shuāngào insect virus 1 (SgIV-1)
Family *Phasmaviridae*		
Feravirus	*Ferak feravirus**	Ferak virus (FRKV)
Inshuvirus	*Insect inshuvirus**	Shuāngào insect virus 2 (SgIV-2)
Jonvirus	*Jonchet jonvirus**	jonchet virus (JONV)
Orthophasmavirus	*Culex orthophasmavirus*	Culex orthophasmavirus (CPLV)
	Ganda orthophasmavirus	Ganda orthophasmavirus (GBEEV)
	*Kigluaik phantom orthophasmavirus**	Kigluaik phantom virus (KIGV)
	Nome phantom orthophasmavirus	Nome phantom virus (NOMV)
	Odonate orthophasmavirus	Odonate orthophasmavirus (HbOV-8)
	Qingling orthophasmavirus	Qingling orthophasmavirus (HbOV-9)
	Seattle orthophasmavirus	Seattle orthophasmavirus (SEPV)
	Wuchang cockroach orthophasmavirus 1	Wǔchāng cockroach virus 1 (WcCV-1)

	Wuhan mosquito orthophasmavirus 1	Wǔhàn mosquito virus 1 (WhMV-1)
	Wuhan mosquito orthophasmavirus 2	Wǔhàn mosquito virus 2 (WhMV-2)
Sawastrivirus	*Sanxia sawastrivirus**	Sānxiá water strider virus 2 (SxWSV-2)
Wuhivirus	*Insect wuhivirus**	Wǔhàn insect virus 2 (WhIV-2)
Family *Phenuiviridae*		
Banyangvirus	*Guertu banyangvirus*	Guertu virus (GTV)
	Heartland banyangvirus	Heartland virus (HRTV)
	*Huaiyangshan banyangvirus**	severe fever with thrombocytopenia syndrome virus (SFTSV)
Beidivirus	*Dipteran beidivirus**	Húběi diptera virus 3 (HbDV-3)
Goukovirus	*Cumuto goukovirus*	Cumuto virus (CUMV)
	*Gouleako goukovirus**	Gouléako virus (GOLV)
	Yichang insect goukovirus	Yíchāng insect virus (YcIV)
Horwuvirus	*Horsefly horwuvirus**	Wǔhàn horsefly virus (WhHV)
Hudivirus	*Dipteran hudivirus**	Húběi diptera virus 4 (HbDV-4)

Hudovirus	*Lepidopteran hudovirus**	Húběi lepidoptera virus 1 (HbLV-1)
Kabutovirus	*Huangpi kabutovirus**	Huángpí tick virus 2 (HpTV-2)
	Kabuto mountain kabutovirus	Kabuto mountain virus (KAMV)
Laulavirus	*Laurel Lake laulavirus**	Laurel Lake virus (LLV)
Mobuvirus	*Mothra mobuvirus**	Mothra virus (MTHV)
Phasivirus	*Badu phasivirus**	Badu virus (BADUV)
	Phasi Charoen-like phasivirus	Phasi Chaeron-like virus (PCLV)
	Wutai mosquito phasivirus	Wǔtái mosquito virus (WtMV)
Phlebovirus	*Bujaru phlebovirus*	Bujaru virus (BUJV)
		Munguba virus (MUNV)
	Candiru phlebovirus	Alenquer virus (ALEV)
		Ariquemes virus (ARQV)
		Candirú virus (CDUV)
		Itaituba virus (ITAV)
		Jacundá virus (JCNV)

		Maldonado virus (MLOV)
		Morumbi virus (MR(M)BV)
		Mucura virus (MCRV/MRAV)
		Nique virus (NIQV)
		Oriximiná virus (ORXV)
		Serra Norte virus (SRNV)
		Turuna virus (TUAV)
	Chilibre phlebovirus	Cacao virus (CACV)
		Chilibre virus (CHIV)
	Frijoles phlebovirus	Frijoles virus (FRIV)
		Joá virus (JOAV)
	Mukawa phlebovirus	Mukawa virus (MKWV)
	Punta Toro phlebovirus	Buenaventura virus (BUEV)
		Campana virus (CMAV)
		Capira virus (CAPIV)

		Coclé virus (CCLV)
		Leticia virus (LTCV)
		Punta Toro virus (PTV)
	*Rift Valley fever phlebovirus**	Rift Valley fever virus (RVFV)
	Salehabad phlebovirus	Adana virus (ADAV)
		Adria virus (ADRV)
		Alcube virus
		Arbia virus (ARBV)
		Arumowot virus (AMTV)
		Bregalaka virus (BREV)
		Medjerda Valley virus (MVV)
		Odrénisrou virus (ODRV)
		Olbia virus (OLBV)
		Salehabad virus (SALV)
		Zaba virus (ZABAV)

	Sandfly fever Naples phlebovirus	Arrábida virus (ARRV)
		Balkan virus (BALKV)
		Fermo virus (FERV)
		Gordil virus (GORV)
		Granada virus (GRV = GRAV)
		Massilia virus (MASV)
		Punique virus (PUNV)
		Saddaguia virus (SADV)
		Saint-Floris virus (SAFV)
		sandfly fever Naples virus (SFNV)
		Tehran virus (THEV)
		Toscana virus (TOSV)
		Zerdali virus (ZERV)
	Uukuniemi phlebovirus	Chizé virus (CHZV)
		EgAN 1825-61 virus (EGAV)

		Fin V 707 virus (FINV)
		Oceanside virus (OCV = OCEV)
		Pontevès virus (PTVV)
		St. Abbs Head virus (SAHV)
		Uukuniemi virus (UUKV)
		Zaliv Terpenyia virus (ZTV)
Pidchovirus	*Pidgey pidchovirus**	Pidgey virus (PGYV)
Tenuivirus	*Echinochloa hoja blanca tenuivirus*	Echinochloa hoja blanca virus (EHBV)
	Iranian wheat stripe tenuivirus	Iranian wheat stripe virus (IWSV)
	Maize stripe tenuivirus	maize stripe virus (MStV = MSpV)
	Rice grassy stunt tenuivirus	rice grassy stunt virus (RGSV)
	Rice hoja blanca tenuivirus	rice hoja blanca virus (RHBV)
	*Rice stripe tenuivirus**	rice stripe virus (RSV = RStV)
	Urochloa hoja blanca tenuivirus	Urochloa hoja blanca virus (UHBV)
Wenrivirus	*Shrimp wenrivirus**	Wēnzhōu shrimp virus 1 WzSV-1

Wubeivirus	*Dipteran wubeivirus**	Húběi diptera virus 5 (HbDV-5)
	Fly wubeivirus	Wǔhàn fly virus 1 (WhFV-1)
Family *Tospoviridae*		
Orthotospovirus	*Bean necrotic mosaic orthotospovirus*	bean necrotic mosaic virus (BeNMV)
	Calla lily chlorotic spot orthotospovirus	calla lily chlorotic spot virus (CCSV)
	Capsicum chlorosis orthotospovirus	Capsicum chlorosis virus (CaCV)
	Chrysanthemum stem necrosis orthotospovirus	Chrysanthemum stem necrosis virus (CSNV)
	Groundnut bud necrosis tospovirus[1]	groundnut bud necrosis virus (GBNV)
	Groundnut ringspot tospovirus[1]	groundnut ringspot virus (GRSV)
	Groundnut yellow spot tospovirus[1]	groundnut yellow spot virus (GYSV)
	Impatiens necrotic spot tospovirus[1]	impatiens necrotic spot virus (INSV)
	Iris yellow spot tospovirus[1]	iris yellow spot virus (IYSV)
	Melon severe mosaic orthotospovirus	melon severe mosaic virus (MSMV)
	Melon yellow spot orthotospovirus	melon yellow spot virus (MYSV)

	Polygonum ringspot tospovirus[1]	Polygonum ringspot virus (PolRSV)
	Soybean vein necrosis orthotospovirus	soybean vein necrosis virus (SVNV)
	Tomato chlorotic spot tospovirus[1]	tomato chlorotic spot virus (TCSV)
	*Tomato spotted wilt tospovirus**[1]	tomato spotted wilt virus (TSWV)
	Watermelon bud necrosis tospovirus[1]	watermelon bud necrosis virus (WBNV)
	Watermelon silver mottle tospovirus[1]	watermelon silver mottle virus (WSMoV)
	Zucchini lethal chlorosis tospovirus[1]	zucchini lethal chlorosis virus (ZLCV)
Family *Wupedeviridae*		
Wumivirus	*Millipede wumivirus**	Wǔhàn millipede virus 2 (WhMV-2)
Unassigned		
Coguvirus	*Citrus coguvirus**	citrus concave gum-associated virus (CCGaV)

*type species

[1]Due to a formal classification mistake, this species was not correctly renamed to include the genus epithet "*orthotospovirus*". A proposal to ensure that all species included in the gens *Orthotospovirus* are named uniformly ending in " *orthotospovirus*" will be submitted prior to the next taxonomic proposal submission deadline.

¶Please note that viruses are real objects that are assigned to concepts that are called taxa. Species, genera, families, and orders are taxa. Taxon names are always italicized and always begin with a capital letter. Virus names, on the other hand, are not italicized and are not capitalized, except if the name or a name component is a proper noun. This column lists the virus names with their correct (lack of) capitalization. Lists of viruses within a given species are provisional at this point and will likely be amended in the near future.

COMPLIANCE WITH ETHICAL STANDARDS

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the US Department of the Army, the US Department of Defense, the US Department of Health and Human Services, or of the institutions and companies affiliated with the authors. In no event shall any of these entities have any responsibility or liability for any use, misuse, inability to use, or reliance upon the information contained herein. The US departments do not endorse any products or commercial services mentioned in this publication.

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Conflict of Interest

The authors declare no conflicts of interest.

Ethical approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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